

Algebraic Concepts  
Lesson 24: Polynomial Operations  
Math for Standards

Name \_\_\_\_\_  
Date \_\_\_\_\_

*EQ: What are polynomials and how are the operations applied to them?*

A \_\_\_\_\_ has one term and can be a single number, variable, or both.

Terms that have both (such as  $3x$ ,  $4ty$ , etc.) will be connected by multiplication.

Like terms have the same \_\_\_\_\_.

Many polynomials can be written in factored forms. This means we can take the  
polynomial and write it as a \_\_\_\_\_ of two or more other polynomials.

Like terms can be \_\_\_\_\_, but unlike terms will be written as the \_\_\_\_\_  
or \_\_\_\_\_ in polynomial form.

You can \_\_\_\_\_ polynomials, even if they are not like terms. You can  
use the \_\_\_\_\_ property, if necessary.

To divide a polynomial by a monomial, divide \_\_\_\_\_.

Example 1: Simplify the expression if possible. If not possible, explain why.

a.  $3x + 8y - 6x + 4y$

b.  $(m^2n^5 - 2mn) - (-m^2n^5 + 2mn)$

c.  $(y^2 - 6y + 3) + (-3y - 4)$

d.  $15 - (-2a + 5b + 9)$

e.  $(12a^2 + 5a^2b) - (9ab + 4b^2)$

Example 2: The length of a side of a rhombus is  $3m^2 - 4$ . What is its perimeter?

Example 3: Find the product or quotient.

a.  $3mn(2m - 3n^2)$

b.  $(4x - 2)(2x + 5)$

c.  $\frac{35a^4b^5}{7a^2b}$

Example 4: The length of the side of a square is  $4x^2$  inches long. Find an expression to represent the area and length of the square. Then find each measure when  $x = 3$ .

Example 5: Matt Mitarnowski is driving at  $(x^3 - 2xy)$  miles per hour. How far would he travel in  $x$  hours? Find the distance traveled in  $x$  hours if  $x = 4$  and  $y = 3$ .